CLAIMS

We claim:

1. A method of improving driver performance through performance feedback; the method comprising the steps of:

receiving vehicle operating data from the vehicle relating to the vehicle operating condition;

monitoring an interior portion of the vehicle and receiving operator activity data from the interior portion of the vehicle relating to activities of the operator within the interior portion;

receiving vehicle environment data from the environment external to the vehicle;

monitoring the vehicle operator and receiving operator condition data relating to a condition of the vehicle operator;

recording an operator performance assessment based on the vehicle operating data, the operator activity data, the vehicle environment data and the operator condition data; and

reporting the operator performance assessment to the operator.

2. The method of claim 1, wherein the step of reporting the operator performance assessment comprises reporting the operator performance assessment upon conclusion of vehicle operation.

3. The method of claim 1, wherein the step of reporting the operator performance assessment comprises reporting the operator performance assessment during operation of the vehicle.

4. The method of claim 1, further comprising recording a first operator performance assessment relating to a first period of vehicle operation and recording a second operator performance assessment relating to a second period of vehicle operation and comparing the first operator performance assessment and the second operator performance assessment.

5. The method of claim 1, further comprising the step of receiving operator preference data, and wherein the step of recording an operator performance assessment comprises recording an operator performance assessment based on the operator preference data.

6. The method of claim 1, wherein the operator performance assessment is representative of operator skill.

7. The method of claim 1, wherein the operator performance assessment comprises a score for each of a plurality of aspects of vehicle operation.

8. The method of claim 1, wherein the step of reporting the operator performance assessment comprises providing at least one of a visual indication, an audio indication and a haptic indication.

9. The method of claim 1, wherein the step of receiving data from the vehicle relating to the vehicle operating condition comprises receiving data relating to at least one of: vehicle speed and vehicle acceleration.

10. The method of claim 1, wherein the step of receiving data from the vehicle relating to the vehicle operating condition comprises receiving data relating to at least one of: throttle application, brake application and steering wheel input.

11. The method of claim 10, wherein throttle application comprises at least one of throttle position, rate of change of throttle position, additional available throttle input and throttle applicator pressure.

12. The method of claim 10, wherein the brake application comprises at least one of brake position, rate of change of brake position, additional available brake input and brake applicator pressure.

13. The method of claim 10, wherein the steering wheel input comprises at least one of steering wheel position, rate of change of the steering wheel, operator pressure applied to the steering wheel and additional available steering input.

14. The method of claim 1, wherein the step of receiving data from the vehicle relating to the vehicle operating condition comprises receiving data relating to an operating parameter of the vehicle.

15. The method of claim 1, wherein the step of monitoring an interior portion of the vehicle comprises monitoring the usage of vehicle system controls by the operator.

16. The method of claim 15, wherein the vehicle system controls comprise driving controls.

17. The method of claim 15, wherein the vehicle system controls comprise telematics controls.

18. The method of claim 15, wherein the vehicle system controls comprise occupant comfort controls.

19. The method of claim 15, wherein the vehicle system controls comprise infotainment controls.

20. The method of claim 15, wherein the vehicle system controls comprise communication controls.

21. The method of claim 1, wherein the step of monitoring the vehicle operator comprises monitoring a physical condition of the operator.

22. The method of claim 21, wherein the physical condition comprises fatigue.

23. The method of claim 21, wherein the physical condition comprises intoxication.

24. The method of claim 1, wherein the step of monitoring the vehicle operator comprises monitoring a psychological condition of the operator.

25. The method of claim 1, wherein the step of monitoring an interior portion of the vehicle comprises monitoring a distraction condition of the operator.

26. The method of claim 1, wherein the step of monitoring an interior portion of the vehicle comprises monitoring vehicle passengers.

27. The method of claim 1, wherein the step of receiving data from the environment comprises receiving road condition data.

28. The method of claim 1, wherein the step of receiving data from the environment comprises receiving lane following data.

29. The method of claim 1, wherein the step of receiving data from the environment comprises receiving headway data.

30. The method of claim 1, wherein the step of receiving data from the environment comprises receiving traffic data.

31. An apparatus for improving vehicle operator performance, the apparatus comprising:

a sensor fusion module, the sensor fusion module being coupled to a vehicle condition sensor, a vehicle exterior sensor, an operator condition sensor and an operator activity sensor respectively providing to the sensor fusion module vehicle condition data, vehicle environment data, operator condition data and operator activity data, the sensor fusion module operable to provide a master condition list based on the data received by the sensor fusion module;

a response selector coupled to the sensor fusion module, the response selector being operable to determine a current operating condition based upon the master condition list and to assess an operator action in response to the current operating condition to provide an operator performance assessment value based upon the master condition list and the operator action; and

an action generator coupled to the response selector to generator a feedback message to the operator relating to improving performance.

32. The apparatus of claim 31, wherein the vehicle condition data comprises at least one of: vehicle speed, vehicle acceleration, throttle application, brake application, steering wheel input, throttle position, rate of change of throttle position, additional available throttle input, throttle applicator pressure, brake position, rate of change of brake position, additional available brake input, brake applicator pressure, steering wheel position, rate of change of the steering wheel position, operator pressure applied to the steering wheel and additional available steering input.

33. The apparatus of claim 31, wherein the operator activity data comprises usage data relating to at least one of driving controls, telematics controls, occupant comfort controls, infotainment controls and communication controls.

34. The apparatus of claim 31, wherein the operator condition data comprises data relating to at least one of fatigue, intoxication and distraction.

35. The apparatus of claim 31, wherein the vehicle environment data comprises data relating to at least one of road condition, lane following, headway, traffic control and traffic condition.

36. The apparatus of claim 31, wherein operator performance assessment value comprises an inference value.

37. The apparatus of claim 31, wherein the vehicle exterior sensor comprises at least one of radar, laser, video and sonar.

38. The apparatus of claim 31, wherein the operator activity sensor comprises video.

39. The apparatus of claim 31, wherein the feedback message comprises a pre-recorded message.